

IN THE CLAIMS:

Please amend Claims 1, 4, and 5, and add new Claim 27 as follows.

1. (Currently Amended) An apparatus for vapor deposition of coatings having a thickness ranging from about 5 Å to about 1,000Å, where at least one coating precursor used for formation of said coating exhibits a vapor pressure below about 150 Torr at a temperature of 25 °C, the apparatus consisting essentially of:

at least one coating precursor ~~container~~ delivery system, which precursor delivery system includes in which said at least one

a) a coating precursor container into which a coating precursor, in the form of a liquid or a solid, is placed;

b) a at least one coating precursor vapor reservoir for holding vapor generated from of said ~~at least one coating precursor container~~;

c) a at least one device which controls coating precursor vapor flow from said at least one coating precursor container into said at least one coating precursor vapor reservoir which corresponds with said at least one coating precursor container, wherein said device responds in response to a signal from a process controller;

d) a at least one coating precursor vapor reservoir pressure sensor which corresponds with each said at least one pressure vapor reservoir, which pressure sensor which is in communication with said at least one coating precursor vapor reservoir;

e) a process controller which receives data from said at least one coating precursor vapor reservoir pressure sensor, compares said data with a desired nominal vapor reservoir

pressure ~~which corresponds with said at least one~~ for said coating precursor vapor reservoir, and sends a signal to a ~~corresponding~~ said device which controls vapor flow from said ~~at least one~~ coating precursor container, ~~which corresponds with said at least one coating precursor vapor reservoir, wherein said signal acts to prevent further vapor flow into said at least one~~ coating precursor vapor reservoir when said desired nominal pressure for ~~that at least one~~ said coating precursor reservoir is reached;

f) a process chamber for vapor deposition of said coating on a substrate present in said process chamber; and

g) a device which controls precursor vapor flow from said at least one coating precursor vapor ~~reservoir~~ delivery system upon receipt of a signal from ~~said~~ a process controller, so that there is a single period of vapor flow or intermittent periods of vapor flow into said process chamber; and

h) at least one process controller which receives data from said coating precursor delivery system and controls vapor flow into a coating precursor vapor reservoir, and which controls vapor flow from said coating precursor delivery system into said process chamber.

2. (Previously Presented) An apparatus in accordance with Claim 1, including at least one additional device which applies heat to said coating precursor while it is in said coating precursor container, to produce a vaporous phase of said coating precursor.

3. (Previously Presented) An apparatus in accordance with Claim 1, or Claim 2, wherein a plurality of coating precursor containers, and a corresponding plurality of coating precursor vapor reservoirs are present.

4. (Previously Presented) An apparatus in accordance with Claim 1, wherein the following additional elements are present:

at least one catalyst ~~container~~ delivery system, which catalyst delivery system includes

a) a catalyst container in which said catalyst, in the form of a liquid or a solid is placed;

b) a at least one catalyst vapor reservoir for holding vapor generated from of said ~~at least one~~ catalyst container;

c) a at least one device which controls vapor flow from said catalyst container into said catalyst vapor reservoir ~~which corresponds with said at least one catalyst container,~~ wherein said device responds in response to a signal from a process controller;

d) a at least one catalyst vapor reservoir pressure sensor ~~which corresponds with each of said at least one catalyst vapor reservoir, which pressure sensor~~ which is in communication with said ~~at least one~~ catalyst vapor reservoir;

e) a process controller which receives data from said ~~at least one~~ catalyst vapor reservoir pressure sensor, compares said data with a desired nominal catalyst vapor reservoir pressure ~~which corresponds with said at least one~~ for said catalyst vapor reservoir, and sends a

signal to ~~a corresponding device~~ said device which controls catalyst vapor flow from said at least one catalyst container ~~which corresponds to said at least one catalyst vapor reservoir,~~ wherein said signal acts to prevent further vapor flow into said ~~at least one catalyst vapor reservoir~~ when said desired nominal pressure for ~~that at least one~~ said catalyst vapor reservoir is reached; ~~and~~

f) a device which controls catalyst vapor flow from said at least one catalyst vapor reservoir delivery system upon receipt of a signal from ~~said~~ a process controller, so that there is a single period of vapor flow or an intermittent period of vapor flow into said process chamber; and

g) at least one process controller which receives data from said catalyst delivery system and controls vapor flow into a catalyst vapor reservoir, and which controls vapor flow from said catalyst delivery system into said process chamber.

5. (Currently Amended) An apparatus in accordance with Claim 3 1 or Claim 4, wherein said process controller resides in a single process controller which receives data from a plurality of pressure sensors and sends a signal to a plurality of devices which control vapor flow from a plurality of coating precursor containers.

6. (Previously Presented ) An apparatus in accordance with Claim 4, including at least one device which applies heat to a coating precursor while it is in said coating precursor container, to produce a vaporous phase of said coating precursor.

7. (Previously Presented) An apparatus in accordance with Claim 4, including at least one additional device which applies heat to a catalyst while it is in said catalyst container, to produce a vaporous phase of said catalyst.
8. (Previously Presented) An apparatus in accordance with Claim 4, wherein an additional element is present in the form of a remote plasma generator which furnishes plasma species to said process chamber.
9. (Previously Presented) An apparatus in accordance with Claim 1 or Claim 2, or Claim 4, or Claim 6, wherein said coating thickness ranges from about 5 Å to about 500 Å.
10. (Original) An apparatus in accordance with Claim 9, wherein said coating thickness ranges from about 5 Å to about 300 Å.
11. - 25. (Cancelled)
26. (Previously Presented) An apparatus in accordance with Claim 1, wherein the following additional element is present, a remote plasma generator which furnishes plasma to said apparatus for vapor deposition of coatings.

27. (New) An apparatus in accordance with Claim 3, wherein the following additional elements are present:

at least one catalyst delivery system, which catalyst delivery system includes

a) a catalyst container in which said catalyst, in the form of a liquid or a solid is placed;

b) a catalyst vapor reservoir for holding vapor generated from said catalyst container;

c) a device which controls vapor flow from said catalyst container into said catalyst vapor reservoir in response to a signal from a process controller;

d) a catalyst vapor reservoir pressure sensor which is in communication with said catalyst vapor reservoir;

e) a process controller which receives data from said catalyst vapor reservoir pressure sensor, compares said data with a desired nominal catalyst vapor reservoir pressure for said catalyst vapor reservoir, and sends a signal to said device which controls catalyst vapor flow from said catalyst container to said catalyst vapor reservoir, wherein said signal acts to prevent further vapor flow into said at least one catalyst vapor reservoir when said desired nominal pressure for said catalyst vapor reservoir is reached;

f) a device which controls catalyst vapor flow from said at least one catalyst vapor delivery system upon receipt of a signal from a process controller, so that there is a single period of vapor flow or an intermittent period of vapor flow into said process chamber; and

g) at least one process controller which receives data from said catalyst delivery system and controls vapor flow into a catalyst vapor reservoir, and which controls vapor flow from said catalyst delivery system into said process chamber.